This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

Claim 1. (currently amended) A transgenic~~, non-human mammal~~ mouse comprising erythrocytes that produce a human hemoglobin, but fail to produce adult hemoglobin endogenous to said ~~non-human mammal~~ mouse.

Claim 2. (currently amended) The transgenic~~, non-human mammal~~ mouse of claim 1, wherein said erythrocytes fail to produce non-adult hemoglobin endogenous to said ~~non-human mammal~~ mouse.

Claim 3. (cancelled)

Claim 4. (currently amended) The transgenic~~, non-human mammal~~ mouse of claim 1, wherein said human hemoglobin is hemoglobin A.

Claim 5. (currently amended) The transgenic~~, non-human mammal~~ mouse of claim 1, wherein said human hemoglobin is sickle hemoglobin.

Claim 6. (currently amended) The transgenic~~, non-human mammal~~ mouse of claim 1, wherein said human hemoglobin is fetal hemoglobin.

Claim 7. (currently amended) transgenic~~, non-human mammal~~ mouse of claim 1, wherein said human hemoglobin is an anti-sickling hemoglobin.

Claim 8. (currently amended) The transgenic~~, non-human mammal~~ mouse of claim 7, wherein said anti-sickling hemoglobin is selected from the group consisting of Hb AS1, Hb AS2, Hb AS3, Hb AS4, and Hb AS5.

Claim 9. (currently amended) The transgenic~~, non-human mammal~~ mouse of claim 1, wherein said human hemoglobin is hemoglobin Kansas Porto Alegre.

Claim 10. (currently amended) The transgenic~~, non-human mammal~~ mouse of claim 1, wherein said erythrocytes produce human fetal hemoglobin and human sickle hemoglobin.

Claim 11. (currently amended) The transgenic~~, non-human mammal~~ mouse of claim 1, wherein precursors of said erythrocytes each comprise a human hemoglobin gene comprising a thalassemic mutation.

Claim 12. (currently amended) The transgenic~~, non-human mammal~~ mouse of claim 11, wherein said precursors of said erythrocytes each further comprise a gene encoding a human γ-globin chain.

Claim 13. (currently amended) The transgenic~~, non-human mammal~~ mouse of claim 11, wherein said precursors of said erythrocytes each further comprise a gene encoding a human β-globin chain.

Claim 14. (currently amended) The transgenic~~, non-human mammal~~ mouse of claim 1, wherein said erythrocytes produce a human anti-sickling hemoglobin and human sickle hemoglobin.

Claim 15. (currently amended) transgenic~~, non-human mammal~~ mouse of claim 1, wherein precursors of said erythrocytes each comprise a chromosome comprising a human γ-globin gene and a human .beta.-globin gene.

Claim 16. (currently amended) transgenic~~, non-human mammal~~ mouse of claim 1, wherein precursors of said erythrocytes each comprise a first chromosome comprising a human γ-globin gene and a human β-globin gene, and a second chromosome comprising a human ϵ-globin gene, a human γ-globin gene, a human δ-globin gene, and a human β-globin gene.

Claim 17. (currently amended) The transgenic~~, non-human mammal~~ mouse of claim 16, wherein said human β-globin gene encodes a β^s hemoglobin chain.

Claim 18. (currently amended) The transgenic~~, non-human mammal~~ mouse of claim 16, wherein precursors of said erythrocytes each comprise a first chromosome comprising a human γ-globin gene and a human β-globin gene, and a second chromosome comprising a human ϵ-globin gene, two human γ-globin genes, a human ψβ-globin gene, a human δ-globin gene, and a human β-globin gene.

Claim 19. (currently amended) A method of producing human hemoglobin, said method comprising expressing said human hemoglobin in the erythrocytes of a transgenic~~, non-human mammal~~ mouse of claim 1.

Claim 20. (cancelled)

Claim 21. (currently amended) A method of testing a substance for efficacy in treating sickle cell anemia, said method comprising exposing a transgenic~~, non-human mammal~~ mouse of claim 5 to said substance and monitoring a characteristic of sickle cell anemia in said transgenic~~, non-human mammal~~ mouse following substance exposure, wherein amelioration of said characteristic of sickle cell anemia indicates a substance useful for treating sickle cell anemia.

Claim 22. (original) The method of claim 21, wherein precursors of said erythrocytes each comprise a first chromosome comprising a human γ-globin gene and a human β-globin gene, and a second chromosome comprising a human ϵ-globin gene, a human γ-globin gene, a human δ-globin gene, and a human β^s globin gene.

Claim 23. (original) The method of claim 21, wherein said characteristic of sickle cell anemia is red blood cell sickling.

Claim 24. (cancelled)